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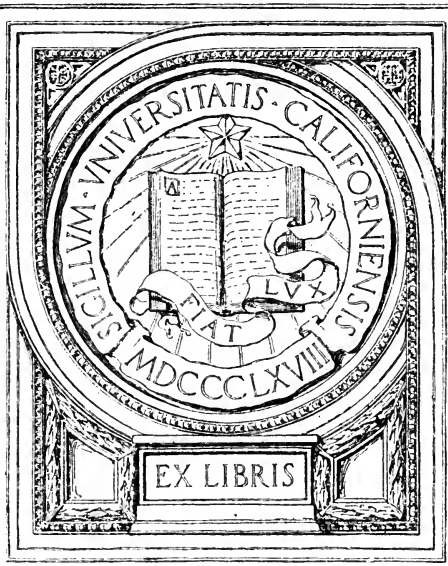
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THE SEMICENTENNIAL PUBLICATIONS OF THE UNIVERSITY OF CALIFORNIA are offered as an expression of some of the more notable scholarly and literary work of the University. Part of these publications represent important current activities in various departments; others are distinctly monographic in character, and are the results of long-continued investigations which have been carried to conclusions within the semicentenary year. Work on some contributions was necessarily suspended by reason of war conditions, but all the publications included in the following pages are either completed or nearing completion. These publications, of course, do not include the whole of the scholarly work of the University within the last years of the fifty-year period, for the University has also continued to issue its regular series and memoirs, while members of its Faculty have published text-books and other works not falling within the scope of the University's established series.

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The Semicentennial Publications include sixty-eight titles in fifty-four volumes. A limited edition of two hundred and fifty sets of the series is uniformly bound in blue cloth with appropriate gold lettering and an impression of the University seal. These sets are intended for distribution to sister institutions in commemoration of the Semicentenary Anniversary.

PHILOSOPHY

Footnotes to Formal Logic

By Charles Henry Rieber, Professor of Logic. University of California Press. 8vo., 177 pp.

This volume consists of a series of critical essays, which taken together are intended as a defense of the Aristotelian logic. In the modern indictment of formal logic, the chief attack has been made upon the traditional idealistic view of the import of judgment, and upon Aristotle's doctrine of syllogism. The author has set forth a view of inference which, as he believes, provides for a necessary factor in the thinking process beyond its pragmatic characteristics. He has also offered a new interpretation of Aristotle's doctrine of syllogism, which rescues it from the accusation of tautology and makes it universally valid.

Fugitive Essays

By Josiah Royce. Edited by Jacob Loewenberg.

Of the essays which comprise this volume only the last two bear a comparatively late date. The others represent Professor Royce's early views on literary and philosophic topics. They were written between the years 1878 and 1882, when he was

Instructor in English at the University of California. Two features make these essays attractive to the student of Royce's philosophy. One is the fact that in them we find certain ideas which are characteristic of all his later writings. The outline-form of his system may be traced back to these early utterances. The other interest attached to these essays is their biographical value. It is known that Royce did not desire an account of his life to be written. Those interested in his mental biography are dependent upon his writings. Thus his early essays are of immense value. With their aid we may reconstruct the formative period of our great philosopher. In them are mirrored his interest and his problems, his temperament and his character.

Idealism and the Modern Age

By George Plimpton Adams, Associate Professor of Philosophy. About 250 pp.

This essay presents a study of the relation between certain moving forces and ideals in modern life, such as democracy, science, the modern industrial order, and certain aspects of philosophical idealism.

The Idealism of Kant's Successors

By JOSIAH ROYCE. Edited with an introduction by JACOB LOEWENBERG.

This book consists of a series of lectures delivered at the Johns Hopkins University in 1906, under the title *Aspects of Post-Kantian Idealism.* Aside from its intrinsic value the volume now has an added interest. Professor Royce's condemnation of modern Germany, voiced in his essays upon the war, is peculiarly impressive when viewed in the light of his intellectual attachment to her classic philosophy. Germany is judged, not by one who disparages or belittles, but by one who knows and cherishes the ideals of her past. A sane and sympathetic appreciation of Kant and his successors by one who showed no hesitancy in denouncing present day Germany should be welcomed by professional and general students alike.

A Survey of Symbolic Logic

By CLARENCE IRVING LEWIS, Assistant Professor of Philosophy. University of California Press. Large 8vo., about 500 pp.

Within the last quarter-century symbolic logic has been recognized as the basic branch of mathematics and as a most important instrument of all exact deductive procedure. Peano's *Formulaire des Mathematiques,* the *Principia Mathematica* of Whitehead and Russell, and numerous other studies of the same sort, evidence this recognition and

growing importance. But, as frequently happens in the case of a new subject, the modes of procedure and the notation of different contributors have varied widely, so that it is only with the greatest difficulty that the student can gain a comprehensive view of the subject at the present time. The *Survey* attempts to alleviate this difficulty by bringing within the compass of a single volume, and reducing to a common notation—so far as possible—the most important developments of symbolic logic. The first chapter gives a historical summary, and later chapters develop systematically the fundamental branches of the subject.

Theophrastus and the Greek Physiological Psychology before Aristotle

By GEORGE MALCOLM STRATTON, Professor of Psychology. London: George Allen and Unwin, Ltd.; New York: The Macmillan Company. 8vo., 227 pp.

Material that is of great value to students of psychology and physiology is here made available for the first time in English. The volume contains the text and translation, with notes, of Theophrastus's writing *On the Senses,* a writing which presents a careful historical account of the physiological psychology not only of vision, hearing, and the other special senses, but also of pleasure and pain, of intelligence, and of temperament. By way of introduction Professor Stratton gives also Theophrastus's own views of several of these topics as

found in the whole range of his extant works.—The writing *On the Senses* is the fullest account that has come down to us—indeed it is fuller than all other ancient sources combined—of the physiological psychology from Alcmaeon to Plato. An unusual value lies also in its critical scrutiny of this earlier science. A considerable portion of the writing *On the Senses* is given over to Theophrastus's reasoned objections to the theories and observations of his predecessors. The reader thus receives a vivid impression of the criticism to which their work was subjected by the later Greeks.

HISTORY

The Breakdown of Spanish Rule in South America

By BERNARD MOSES, Professor of History and Political Science, Emeritus. About 300 pp.

The writer of *The Spanish Dependencies in South America* presents in the present volume a consideration of the last decades of colonial dependence in Spanish South America. He finds that during the period in question, in spite of certain measures of economic progress, the authority and efficiency of the government were declining. The policy of the crown to confer important offices in America only upon persons sent from Spain, led the creoles and mestizos gradually to constitute themselves a society apart from the Spaniards, and in opposition to the established administration. Revolts against the policy of this administration and against its imposition of specific fiscal burdens constitute a feature of this history, and indicate that the colonies were slipping from the grasp of Spain, even before the creole-mestizo elements in the population had clearly formed a design for emancipation. The author gives a somewhat extended account of the expulsion of the Jesuits as an act depriving the dependencies of their ablest and most effective teachers, as well as

of their most energetic and far-sighted industrial and commercial entrepreneurs. By this act, moreover, the government removed the only body of residents who manifested any clear conception of the proper relations to be maintained between the Spaniards and the Indians. The manner in which the development of interest in science and politics contributed to the spirit of patriotic independence is illustrated by the careers of Mutis and Nariño. This patriotic outlook towards independence is further presented in the negotiations and expedition of Miranda and the heroic defense and recapture of Buenos Aires by the citizens after Viceroy Sobremonte had ignominiously abandoned the field.

Catalogue of Materials in the Archivo General de las Indias for the History of the Pacific Coast and the American Southwest

By Charles Edward Chapman, Assistant Professor of Latin-American and California History. University of California Press. 8vo., about 800 pp.

This volume represents an examination of some 250,000 documents, or 500,000 pages of manuscript material (each page 21½ by 31½ centimetres in size), from which some 25,000 documents were selected as having a bearing on Western American history. For purposes of entry the 25,000 documents have been reduced to some 6000 items. A

full technical description and a brief indication of the contents of the documents are given, and all of the items are arranged in chronological order. Except for two recent volumes that were based very largely on the materials of the *Catalogue* (*The Founding of Spanish California,* by Charles E. Chapman: New York, 1916; and *José de Gálvez, Visitor-General of New Spain,* by Herbert Ingram Priestley: Berkeley, 1916), few works have yet utilized the materials now made available; indeed, some 5000 items (or 20,000 documents) of exceptional value have never been used at all. A hundred different volumes could find their principal basis in the documents which the *Catalogue* records, and an unlimited number of others may be expected to make use of its information. Technically, the documents catalogued are of the greatest value, since they were the official file of the highest body of Spanish colonial machinery in Spain. They range in date from 1596 to 1830, but most of them relate to the eighteenth century.—The introduction to the book contains, among other matters, a section describing the extraordinary wealth of the Archivo General de las Indias of Seville, Spain, and another giving a history of the Native Sons' Fellowships of the University of California, with an account of the activities of the various fellows.

The Danish West Indies under Company Rule (1671-1754), with a Supplementary Chapter (1755-1917)

By Waldemar Westergaard, Assistant Professor of History at Pomona College. With an Introduction by H. Morse Stephens, Sather Professor of History at the University of California. Maps and illustrations. New York: The Macmillan Company. 8vo., xxiv + 359 pp.

Dr. Westergaard, an American scholar of Danish extraction, has here given us the first history of the Danish West Indies written from the primary sources. The importance of the work is conditioned not alone by the peculiar significance of the West Indies in American history, but also by the special fitness of Dr. Westergaard for his task. With a native command of the Danish language, the author began his work by a study of original documents in the Bancroft Library. This done, he went to Denmark and spent a year gathering the pertinent materials contained in the government archives. With the data thus assembled he wrote the present account. The book was written before the transfer of the Danish possessions to the United States, an event which gave it especial timeliness. Because of the increased interest thus attached to the subject Dr. Westergaard added a supplementary chapter bringing the account down to the present. The introduction by Professor

Stephens makes clear the place of the Danish West Indies in the general history of the New World.

Father Kino's Historical Memoir of the Southwest

Translated for the first time into English from the original manuscript in the Archives of Mexico, edited and annotated by HERBERT EUGENE BOLTON, Professor of American History. Cleveland: Arthur H. Clark Company. 2 vols., large 8vo., about 700 pp.

This is a careful translation of Kino's *Favores Celestiales,* listed below. It is preceded by an extended and scholarly biography of Father Kino, is illustrated by maps and facsimiles, and contains a full analytical index. The book records the life work of one of America's most remarkable pioneers and makes available to English readers an entertaining first-hand account of the beginnings of European civilization in southern Arizona and adjacent regions.

Favores Celestiales Experimentados en las Nuevas Conquistas y Nuevas Comversiones de la Nueva Navarra. By Eusebio Francisco Kino, S. J.

Now published for the first time in the original language. Edited by HERBERT EUGENE BOLTON, Professor of American History. University of California Press. 8vo., about 500 pp.

Father Kino (died 1711), the noted missionary of Pimería Alta (Southern Arizona and Sonora), wrote an extended narrative of his quarter century of pioneering on that frontier. This precious manuscript was used by the early Jesuit historians Venegas and Ortega, then disappeared, and has been lost to view for a century and a half. Indeed, eminent scholars, noting the references of the early historians to a *relación* written by Father Kino, denied that such a work ever existed. This was the state of the case until some ten years ago, when Professor Bolton discovered the original manuscript in the archives of Mexico. He has carefully edited the document and is now publishing it for the first time in the original language. An English version prepared by Professor Bolton is listed above. The publication of this rare work puts on a sound basis the little known early history of a large section of the Southwest. The *Favores Celestiales* gives a first-hand account of Kino's extraordinary explorations, his missionary work among the Pimas and Yumas, his stock-ranching,

his agricultural enterprises, and his defense of the outposts of civilization against Apache depredations.

The Formation of the State of Oklahoma (1803-1906)

By Roy Gittinger, Professor of English History in the University of Oklahoma. University of California Press. 8vo., 256 pp.

This work is an account of the most notable instance in American history of the stoppage and the reopening of the current of westward migration. In 1906 Oklahoma, the last state to be carved from the Louisiana Purchase, was admitted to the Union. That the region constituting Oklahoma was withheld from statehood longer than any other portion of Louisiana was the result of a long series of events connected with our national Indian policy. In 1830 a large area west of the Mississippi was set apart as Indian territory. A quarter of a century later the northern portion of this tract was organized into the states of Kansas and Nebraska. The Indians concentrated in the Indian reservation thus reduced did not fill it, and the unoccupied lands were soon coveted by the land grant railroad and by white settlers. With the removal, after long-continued pressure, of the legal barriers to the occupation of the soil, the rush of settlers was unprecedented, and within a decade the population had reached a million and a

half. Nevertheless, admission to statehood was not effected without a struggle. Dr. Gittinger is the first scholar to write a comprehensive account of the historical development of the Oklahoma region in its larger relations with the general course of American history. His work is thoroughly documented.

The Morale Scolarium of John Garland, Professor in the University of Paris in the First Half of the Thirteenth Century

Edited with introduction and notes by Louis John Paetow, Associate Professor of Medieval History. University of California Press. Quarto, about 80 pp.

This paper is a critical edition of a hitherto unpublished Latin poem written about the middle of the thirteenth century. It throws new light on the life of medieval students and on the formative period of the University of Paris.

The Processes of History

By Frederick John Teggart, Associate Professor of History. New Haven, Conn.: Yale University Press. About 150 pp.

Hitherto the products of historical investigation have been utilized primarily for the construction of narratives of events; this publication repre-

sents a first attempt to determine what sort of results would be obtained by a strict application of the method of science to the facts of human history. Following the precedents established in evolutionary study, more particularly of organic nature and of language, the author points out that the scientific examination of history should enable us to determine the factors and processes through which man has come to be as he is, and thus to account for the wide diversity at present manifested in the political and intellectual status of human groups. In the present instance all that is attempted is a tentative analysis of these factors and processes; but in the course of the argument it becomes apparent that, so conducted, the study of history throws a new light upon the nature of the activities characteristic of modern political organizations.

LITERATURE AND LANGUAGE

Cervantes

By RUDOLPH SCHEVILL, Professor of Spanish. New York: Duffield and Company. Small 8vo., about 375 pp.

This volume rehearses the chief events of Cervantes' life, and attempts to give an estimate of his various works. The facts recently discovered regarding various members of his family, the new light thrown on his career by numerous documents found in Spanish archives, the interesting investigations in his writings by modern critics, permit a new presentation of his life and literary art. An attempt is also made to relate his chief work to his times and to show how he reflects the culture of the Spanish Renascence.—The book is one of a series of volumes on "Master Spirits of Literature," edited by Professors Noyes and Hart of the University of California, in which Professor Noyes's work on Tolstoy, listed below, is also included.

Cicero: a Biography

By TORSTEN PETERSSON, Instructor in Latin. About 500 pp.

The purpose of this book is to give as comprehensive an account of Cicero as a single volume will permit. It endeavors to keep a proper pro-

portion between his political activities and his accomplishments as an orator and a writer of essays and letters. It aims to present the Roman background, which alone can make the narrative intelligible to any but the special student; to determine and to make clear the Roman attitude toward a man's work in the world, the political atmosphere of Rome, the spirit in which the orators spoke, and the Roman view of rhetoric, philosophy, and writing. Above all, it seeks to give a narrative of Cicero's life as it unfolded from one period to another, and to convey a little of the spirit that animated him. The book is intended for reading and not for reference. Controversy has on the whole been excluded. The notes are brief and relatively few. A brief bibliography is added.

The Dramatic Art of Lope de Vega

By Rudolph Schevill, Professor of Spanish. University of California Press. 8vo., about 400 pp.

This volume sets forth the main characteristics of Lope de Vega's methods of composing, his originality as well as his dependence upon tradition, his gift of improvisation, and his poetic charm. The pictures which he presents are compared with actual contemporary life in order to determine the extent to which he holds a mirror up to nature. His methods are illustrated by means of citations from various plays, both tragedies and comedies, and a concrete example is given in *La Dama Boba,*

a play printed entire and edited from an autograph manuscript. Inasmuch as Lope wrote with unparalleled speed, careful study of his play throws a great deal of light on his art, its artifices as well as its abiding worth.

Edmund Spenser: a Critical Study

By HERBERT ELLSWORTH CORY, Assistant Professor of English. University of California Press. 8vo., 478 pp.

This volume is a study of Spenser's poetry on the basis of his works, their chief sources, and the collective opinion of Spenser in his own and subsequent periods. Its chief positions are as follows. The romantic attitude towards Spenser prevails today and is accountable in large measure for the very fragmentary appreciation of his merits. If we emulate the "neo-classical" interest in Spenser's allegory without sacrificing the contributions of romanticism and if we take quite seriously the poet's own declaration of purposes, we find him to be less detached from life than has been commonly supposed. Above all we find him attempting a unique masterpiece, an epic of prophecy in which he sought not to celebrate but to *make* history. From this point of view the cycle of youthful faith, tragic disillusion, and utimate serene self-conquest appears vividly and impressively in *The Faërie Queene* and in his other works. We are confronted with one of the most audacious failures in the history of literature. We are confronted with inti-

mate and lofty hopes and fears for the destiny of man that seem to foreshadow many of our own most poignant hopes and fears about society today.

English-German Literary Influences: Survey and Bibliography

By Lawrence Marsden Price, Instructor in German. University of California Press. 8vo., about 300 pp.

Despite the generally recognized importance of the influence of English literature on German, especially during the formative period of the latter, about 1720–70, there is no comprehensive treatise on the topic. Instead of this there is an abundance of widely scattered reports of special investigators. In the present volume the bibliography of nearly one thousand titles attempts to organize the study of English-German literary influences, classifying all available material. It is divided into three parts, of which the second treats of the influence of Shakespeare in Germany, the first of other English influences up to the end of the eighteenth century, and the third of such influences in the nineteenth century. The survey, which is similarly divided, records the progress of investigation and by reviewing the important treatises summarizes our present knowledge of the subject. The first part of the survey shows that Koch's much quoted treatise *Über die Beziehungen der deutschen Literatur zur Englischen im 18. Jahrhundert* (1883) should no longer be cited as

an authority, but that special investigations should be substituted for it. The second part shows that special investigators in many cases have disposed of errors in regard to the history of Shakespeare in Germany which are nevertheless still repeated in general literary histories. The third part is the first attempt to summarize English-German literary relations in the nineteenth century.

L'éxotisme américain dans l'oeuvre de Chateaubriand

Par CHARLES GILBERT CHINARD, professeur de la langue et littérature françaises. Paris: Hachette. Small 8vo., ix + 305 pp.

The opening chapters of this volume deal with the life of Chateaubriand from his early years in Combourg to his return from exile in the spring of 1800, and include a discussion of his travels in America. Evidence is given that Chateaubriand saw Niagara Falls and that he traveled in America more extensively than is generally admitted. The later chapters give an analysis of Chateaubriand's American novels. These were written in England during his exile, and *Les Natchez* may be regarded as the history of the author's mind from 1791 to 1799. The documentation of the author is very thorough both in *Les Natchez* and in *Atala*. Chateaubriand consulted the best authorities and took great care to follow very closely the history of the Natchez rebellion. But he is not a plagiarist. The

theme of *Atala,* however, was not new; and for it he borrowed several episodes from little-known works published at the end of the eighteenth century.

Francisco Navarro Villoslada

By Beatrice Quijada Cornish, Assistant in Spanish. University of California Press. 8vo., about 85 pp.

There exists no adequate discussion of the life and works of Francisco Navarro Villoslada, the great historical novelist of the romantic school, the Walter Scott of Basque traditions. No life of Villoslada has been published, no comprehensive literary appreciation has been written, no political estimate of the man has been attempted, and no complete bibliography of his writings is possible, on account of the difficulty in procuring all his works, and in particular because of the vast amount of unpublished material. The main contribution in the present study is to be found in the presentation of details of Villoslada's life, chiefly through the use of materials recently received from Spain, and in a general survey of his literary, political, and journalistic labors. The appendix contains the first preliminary bibliography of Villoslada's works.—The year 1918 marks the celebration in Pamplona of the centenary of the birth of Villoslada. Reviewing the whole subject as attentively as was possible, Mrs. Cornish has attempted to make appreciative use of all available material, in a desire to secure more general regard for the

character and genius of a man who has never, either in this country or abroad, received the recognition that he merits.

Goethe and Sterne

By William Robert Richard Pinger, late Assistant Professor of German. University of California Press. 8vo., about 50 pp.

The question of Goethe's relation to Laurence Sterne has always interested and sometimes puzzled Goethe scholars. Among the papers of the late Professor Pinger there was found a rich fund of material dealing with this relation, the product of several years of collection. The notes throw light upon the extent of Goethe's indebtedness to Sterne, upon Goethe's participation along with Sterne in the sentimental trend of the times, upon Goethe's alleged plagiarism of Sterne and kindred topics. Professor Pinger planned to make these notes the basis of a contribution to the Semicentennial Publications.

The Greek Theatre of the Fifth Century

By James Turney Allen, Associate Professor of Greek. University of California Press. 8vo., about 200 pp.

The purpose of this treatise is to attempt a reconstruction of the theatre at Athens in the fifth century before Christ, which was the golden age of the Greek drama. Unfortunately the meagreness

of the remains of this early theatre makes necessary frequent, indeed almost constant recourse to conjecture. The matter is presented, therefore, in the form of an argument, in the course of which a large portion of the controversial literature dealing with this subject during the last thirty or forty years is passed in review.

Kipling the Story Writer

By WALTER MORRIS HART, Associate Professor of English Philology. University of California Press. Small 8vo., about 200 pp.

This volume is a study of the technique of Kipling's short stories and aims to trace the development of his narrative art from its beginnings to 1910.

Lexicological Evolution and Conceptual Progress

By JOHN TAGGART CLARK, Assistant Professor of Romanic Philology. University of California Press. 8vo., about 30 pp.

In this paper attention is directed more concretely than appears to have yet been done to the importance of studying comparatively the lexical history of different peoples from the point of view of conceptual growth. The vocabulary of a people may be taken as a measure of that people's mentality, both as regards capacity to observe and in-

terest in observing. The languages of primitive peoples are universally characterized by a "hopeless poverty of abstraction" (Farrar), and an exuberant wealth of perceptual detail. The history of cultured languages reveals, on the other hand, a uniform and constant progress toward higher conceptual power. The expression of perceptual ideas tends ever toward wider generalizations, while that of superperceptual ideas tends toward a more analytical and discriminating precision. The Romanic languages are shown to present striking testimony in this regard. As an example of progressive differentiation within a given superperceptual category there is presented the chronology of a certain class of words in English. Attention is called to the inexhaustible wealth of richly significant material directly accessible for the study of psycho-lexical evolution, and to the value of this study for a deeper understanding of the principles underlying the growth of conceptual intelligence.

The Lay of the Cid

Translated from the Spanish by Robert Selden Rose, Instructor in Spanish in the Sheffield Scientific School, and Leonard Bacon, Instructor in English in the University of California. University of California Press. 8vo., about 200 pp.

The Lay of the Cid is the earliest epic poem of the Spanish people. It was composed by an

unknown author, probably in the twelfth century, and has been preserved in a single manuscript. The work is one of the most precious documents that we possess on the medieval civilization of the Peninsula. It is characterized by vigor and directness, by a stirring martial spirit typical of the day in which it was written. The translators have made an effort to preserve these traits and still make the poem intelligible to the modern reader.

Lucreti De Rerum Natura Libri Sex

Recognovit Guilelmus Augustus Merrill, Universitatis Californiensis Professor. University of California Press. Small 8vo., 258 pp.

This book is the result of an effort to establish the text of Lucretius, both by retaining the readings of the principal manuscripts and by emending corrupt passages. It also strives to show that the order of paragraphs in the original manuscripts is probably logically correct, and that the poem is in a more nearly finished condition than it has previously been considered to be.

Methods and Materials of Literary Criticism: Lyric, Epic, and Allied Forms of Poetry

By Charles Mills Gayley, Professor of English, and Benjamin Putnam Kurtz, Associate Professor of English. Boston: Ginn and Company. 8vo., xi + 900 pp.

This work is a survey of the theoretical and historical criticism of the lyric and epic in general and of such special forms as elegy, epigram, ode, sonnet, song, ballad, pastoral, and idyl. The critical theory of each form is summarized in three parts: (1) analysis of the chief problems in theory, (2) annotated bibliography of the more important references, (3) outlines of the development of critical theory in the various nations, ancient and modern. The historical study of each type is considered under three similar heads: (1) analysis of the chief problems in historical criticism, (2) annotated bibliography of the more important references, (3) outlines of the development of each type in the various nations, ancient and modern, supplemented by summaries of apparatus for historical study. In a word, the book aims to present the advanced student of lyric and epic poetry with a digest of the methods and materials of his field.

Les Natchez de Chateaubriand, livres I et II, édites avec des notes critiques

Par CHARLES GILBERT CHINARD, professeur de la langue et littérature françaises. University of California Press. 8vo., about 100 pp.

Les Natchez, though written during Chateaubriand's exile in England, was not published until 1826, and some critics maintain that Chateaubriand made many corrections and even rewrote a large part of the work before publishing it. The notes to this volume show that Chateaubriand could not have written *Les Natchez* in 1826 and that he imitates chiefly the poets that he read in England, particularly Milton and Tasso. Passages borrowed by him from different authors, many of them American travelers, are given in full.

Obras completas de Miguel de Cervantes Saavedra

Edición publicada por RODOLFO SCHEVILL, Profesor en la Universidad de California (Berkeley) y ADOLFO BONILLA, Profesor en la Universidad de Madrid. Madrid: imprenta de Bernardo Rodríguez. Small 8vo.

No critical edition of the complete works of Cervantes has hitherto been attempted. The main object of the present edition is therefore to present a reliable text, by reprinting the first editions in the most trustworthy manner possible. The

editors have added explanatory notes wherever the context required them, in order that the modern reader may understand features of language or culture no longer clear today. Each volume, of moderate size, is designed to contain about 300 pages, of large type, clearly printed. The entire edition will contain about eighteen volumes. Of it two volumes, of Cervantes' *comedias y entremeses,* published in 1918, have been included in the Semicentennial Publications of the University of California.

Pan Tadeusz; or, The Last Foray in Lithuania: a story of life among Polish gentlefolk in the years 1811 and 1812, by Adam Mickiewicz

Translated from the Polish by GEORGE RAPALL NOYES, Associate Professor of Slavic Languages. London: J. M. Dent and Sons, Ltd.; New York: E. P. Dutton and Co. 8vo., xxiv + 354 pp.

Pan Tadeusz, first published in 1834, is the national epic of the Polish people, the masterpiece of all Polish literature. It is better known and loved by all Poles than is any masterpiece of English literature by speakers of English. The only previous English translation of the poem is now out of print. The present version strives to present Mickiewicz's epic in idiomatic and readable English prose. The introduction and notes by the translator give the information needed for an understanding of the position of the poem in Polish

literature, and of the allusions to Polish history and ways of life contained in it.

Plays by Alexander Ostrovsky: A Protégée of the Mistress, Poverty is No Crime, Sin and Sorrow are Common to All, It's a Family Affair—We'll Settle it Ourselves

A translation from the Russian, edited by GEORGE RAPALL NOYES, Associate Professor of Slavic Languages. New York: Charles Scribner's Sons. Small 8vo., 305 pp.

Alexander Ostrovsky (1823–86) is the great Russian dramatist of the central decades of the nineteenth century, of the realistic period in Russian literature which is represented in fiction by Tolstoy, Turgenev, Dostoyevsky, and Goncharov. His work in the drama takes its place beside theirs in the novel. He has been singularly neglected by translators, since only three of his plays have hitherto appeared in English. The present volume includes four important dramas, translated by students in the Slavic Department of the University of California: Jane W. Robertson, Minnie Eline Sadicoff, and John Laurence Seymour. Mr. Leonard Bacon of the English Department has given appropriate form to the verses included in *Poverty is No Crime*. Professor Noyes has revised the book for the press and has added a short introduction.

Serbia Crucified

By MILUTIN KRUNICH, Lieutenant in the Serbian Army, Assistant in Serbo-Croatian. Boston: Houghton Mifflin Company. 12mo., 304 pp.

This volume is a narrative, by a witness of the scenes described and an actor in them, of the tragic history of Serbia in the autumn of 1915, when that country, unaided by her allies, was defending herself from attacks of immensely superior Austrian, German, and Bulgarian armies. Of its four chapters the first describes how Nish, the heart of Serbia, was torn from her. Though her heart was torn out, Serbia still lived. Her sons, slowly retreating, fought incessantly, unable to believe that they must lose their soul also—liberty. These most dreadful moments are described in the chapters, "The Graveyard by the Morava River," and "The Place of the Skull." Then the exhaustion began. Thousands perished in the retreat through Albania. In the fourth chapter such a death is described. A little child, without father or mother, alone, hungry, and half-dead, was found on the road and adopted by a company. Weak, ill, and famished, it died in the hands of those unhappy Serbians.

Shakespeare and the Founders of Liberty in America

By Charles Mills Gayley, Professor of of the English Language and Literature. New York: The Macmillan Company. Small 8vo., 270 pp.

This book is a presentation of historical facts not generally known. It shows that Shakespeare was acquainted with several of the Patriots of the Virginia Council in London who achieved the first charters of liberty for Virginia and New England, that he was the personal friend of some of the most important among them, and that he was indebted for materials incorporated in *The Tempest* to confidential information jealously guarded by the Virginia Council, accessible only to well-wishers of the Patriots, and not published till nine years after the poet's death. The author maintains that Shakespeare held well-defined opinions concerning government and the rights and responsibilities of the individual in relation to it, and that many of the poet's utterances and the drift of his historical plays reveal his sympathy with the views of Sandys, Southampton, and the other leaders of the Patriot party in the reign of James I, and with the political principles of Richard Hooker, the philosopher of the liberal movement. The principles asserted by these men—the Founders of Liberty in America—as developed in the Colonies and in England and reasserted by John Locke, were the inspiration of our Revolutionary fore-

fathers and passed into the Declaration of Independence and the Constitution of the United States. They are the common heritage of democratic ideas and institutions for which the British Empire, France, and America are fighting today—a heritage derived from statesmen of early seventeenth century England who were the friends of Shakespeare.

Solon the Athenian

By Ivan Mortimer Linforth, Associate Professor of Greek. University of California Press. 8vo., about 150 pp.

The purpose of this volume is to make easily accessible to the student or to the general reader all that we know about the first Athenian poet and lawgiver. The book contains an essay on the life and works of Solon, a critical text of the fragments of his poems, with translation and commentary, excursuses on matters requiring special investigation, a bibliography, and indices. At present the only available information about Solon is contained in large histories of Greece. His poems are to be found only in large editions of all the fragments of early Greek poetry, and there is no complete translation and commentary in English.

Studies in Biblical Parallelism

By Louis I. Newman and William Popper, Associate Professor of Semitic Languages. University of California Press. Large 8vo., about 380 pp.

The main characteristic of the literary form of Hebrew poetry and prophecy is the parallelism of two or more successive lines: each thought is in general expressed not once, but twice or more often, in synonymous or in antithetic words and imagery. But while this characteristic predominates, there are occasional lines not so paralleled. The purpose of these studies was to discover if possible a reason for the variations in Amos and in Isaiah, chapters 1–10. In some cases a plausible explanation has been found; in the majority, however, it was observed that just where the parallelism was defective the text was obscure and apparently in need of emendation. Accordingly on the basis of parallelism an emendation for each such verse has been suggested. In addition Mr. Newman has added a general introduction on the development of parallelism and its use both in other Semitic and in various non-Semitic languages, has classified all the verses of Amos according to certain types, and has examined into the probable stanzaic formation of some of the prophecies. Professor Popper has treated the first ten chapters of Isaiah, verse by verse, from the same point of view; and has translated the reconstructed text in such a way as to show some of the other

stylistic characteristics of the original: the comparative length of line, the rhythm, and the assonance.

Studies in Spanish Dramatic Versification: Alarcón and Moreto

By Sylvanus Griswold Morley, Assistant Professor of Spanish. University of California Press. 8vo., about 30 pp.

Spanish plays written in verse include a great variety of different meters. The use of them differs, both in the form and in the amount of each, in the work of different playwrights. Two previous articles, published in the *Bulletin hispanique,* attempted to determine the characteristics, from the metrical point of view, of the dramatist Tirso de Molina. The present study extends the inquiry to two other authors. Each is found to possess special predilections which furnish a basis for determining the authorship of disputed plays.

A Study in the Writings of Don Mariano José de Larra

By Elizabeth McGuire, Instructor in Spanish. University of California Press. 8vo., about 40 pp.

Nothing has been written in English about Don Mariano José de Larra (1809–37), who is conceded by his compatriots to be Spain's greatest modern

satirist. Critics have emphasized his early foreign training and are given to stating that the best of his work is plagiarized. The purpose of the present paper is to mention and classify his chief commentators, to enumerate his various literary attempts, to determine whether he is a classicist or a romanticist, to lay stress on the historical importance of his articles written between 1832 and 1837, to discuss the significance of his pseudonym Fígaro; and, finally, to trace the sources of his dramatic productions to Scribe, Ducange, and Delavigne, and, by comparison, to set forth which of his works are translations and which are adaptations.

Tolstoy

By GEORGE RAPALL NOYES, Associate Professor of Slavic Languages. New York: Duffield and Company. Small 8vo., 395 pp.

This volume is a biography of Tolstoy as a man of letters. It gives only such details of his life as serve to illustrate his literary work or the personality that found expression therein. It strives to give an estimate of his genius as a novelist, as an educator, and as a writer on religious, social, and esthetic questions. It emphasizes the essential unity of Tolstoy's work and his relation to the main currents of Russian life and thought in the nineteenth century; in a word, it presents him as the master spirit among Russian authors.—The

book is one of a series of volumes on "Master Spirits of Literature," edited by Professors Noyes and Hart of the University of California, in which Professor Schevill's work on Cervantes, listed above, is also included.

Twenty-Two Goblins

Translated from the Sanskrit by ARTHUR WILLIAM RYDER, Assistant Professor of Sanskrit. London: J. M. Dent and Sons, Ltd.; New York: E. P. Dutton and Co. 8vo., viii + 220 pp.

This book is a translation of an ancient Sanskrit collection of marvelous stories. The author of the work is unknown and its date cannot be exactly determined, but it has been, for something like two thousand years, extremely popular in India and other countries of Asia. The translator's effort has been to present this matter in a form interesting to the English-speaking world. Two stories of the original have been omitted, on grounds of taste; otherwise the translation is closely literal. An attractive feature of the book is found in twenty colored illustrations by Mr. Perham William Nahl of the Department of Drawing in the University of California.

What is an Indicative? Prolegomena to a Study of Moods

By HERMAN JULIUS WEBER, Associate Professor of German. University of California Press. 8vo., about 45 pp.

This paper sets forth the history of the conception of the indicative on the part of leading grammarians, primarily in the field of the classic languages, from Dionysius Thrax to the present time, and attempts to show that the indicative, which has been commonly regarded from a merely grammatical point of view as one of the moods, has in reality nothing in common with these except the psychologically predicative function. The indicative, presupposing as it does the non-differentiation of the psychological subject and object, and denoting the absolute verbal conception, rendered concrete by predication, must be regarded as a distinct category of the verb.

The World Conception of the Chinese: their Cosmological, Astronomical, and Physico-philosophical Speculations

By ALFRED FORKE, Agassiz Professor of Oriental Languages and Literature. University of California Press. 8vo., about 250 pp.

A great deal has been written on the religion, ethics, and metaphysics, but very little on the natural philosophy of the Chinese. It is scarcely

known that they possess a very complete theory explaining the origin of the world, its elements, and the phenomena of nature resulting from their inter-action. These investigations are not less ingenious than those of the Greeks or those of the Hindus in their Vaiçeshika system. Availing himself of all the ancient and modern Chinese texts bearing on the subject, the author of this volume gives the first systematic survey of this most interesting and important branch of Chinese philosophy, showing how at different times the Chinese conceived of the universe and its parts, heaven, earth, the stars, etc. In their systems the rudiments of astronomy and natural science are interwoven with philosophical speculations that remind one of the scholastic philosophy previous to the beginning of modern science. Some curious parallels are found with religious conceptions of other ancient and primitive peoples. Natural philosophy is so intimately interwoven with Chinese religion and ethics that many peculiarities of the latter cannot be understood without a knowledge of these speculations.

MATHEMATICS AND SCIENCE

The Binary Stars

By ROBERT GRANT AITKEN, Astronomer, Lick Observatory. New York: Douglas C. McMurtrie. 8vo., about 350 pp.

Dr. Aitken writes authoritatively on his subject. It is his object to give a general account of our present knowledge of the binary stars, including such an exposition of the best observing methods and of approved methods of orbit computation as may make a useful guide to those who wish to undertake the investigations of these systems. He has presented conclusions based upon his own researches conducted during the past twenty years. Terms are defined in the brief introduction. The first two chapters give an historical sketch of binary star work. Then follow five chapters devoted to the observing methods and methods of orbit computation for visual, spectroscopic, and eclipsing binaries; the chapter entitled "The Radial Velocity of a Star," which treats of observing apparatus and methods for spectroscopic binary stars, being written by Dr. J. H. Moore. The next three chapters deal statistically with the known orbits of binary stars and with the distribution of binary stars. The final chapter discusses the origin of the binary system.

Catalogue of the Hemiptera of America North of Mexico, excepting the Aphididae, Coccidae and Aleurodidae

By Edward Payson Van Duzee, formerly Instructor in Entomology. University of California Press. Large 8vo., xiv + 902 pp.

This is a critical catalogue of the described Hemipterous insects of America north of Mexico, giving full synonymy, all important references and the distribution of the species by states. In this work the principle of priority has been applied to family and other group names higher than the genus, and references for such group names have been given with the same completeness as has been done in the case of genera and species. Here for the first time such application of the principle of priority has been made in a general catalogue and, with the full bibliography given, will serve in a measure as an index to the value of the principle when applied to zoological nomenclature. Under each name the references are arranged strictly in their chronological order, showing at once the standing and history of the name.

Changes in the Chemical Composition of Grapes During Ripening

By Frederic Theodore Bioletti, Professor of Viticulture and Enology, William Vere Cruess, Assistant Professor of Zymology, and Horace Denan Davi. University of California Press. Large 8vo., 27 pp.

From both the practical and scientific standpoints, it is a matter of importance to know at what periods in the growth of grapes certain desirable constituents, such as sugar and acid in the fruit, and starch and sugar in the leaves reach a maximum. With such information, it is possible to determine, in the case of raisin grapes, in which a maximum of sugar content is desirable, just when picking can be done to best advantage. In the case of certain wine grapes, in which high acidity may be the desirable factor, a knowledge of the period of maximum acidity gives a method of control with regard to the proper time of picking. This paper deals with investigations which attempt to determine these factors and also discusses similar phases of the question with respect to the composition of the leaves of the grape vine. The investigations also show the high variability which characterizes the chemical composition of leaves and fruit on vines, hence showing the necessary precautions which are to be taken in such work. They also consider many other factors which affect the composition of the grape in other respects than those bearing on the sugar and acid content.

Correlation of the Tertiary Formation and Faunas of the Great Basin

By JOHN CAMPBELL MERRIAM, Professor of Palaeontology and Historical Geology. University of California Press. Large 8vo., about 300 pp.; 40 illustrations.

The group of geological formations known as the Tertiary represents the next to the latest of four divisions into which Earth history was at one time divided. In the Great Basin province of North America the rocks of the Tertiary division and the fossil remains which they contain have played an important rôle in interpreting the geological history of the North American continent and of the life of the successive periods. Although of much importance to the history of North America these formations have been among the most imperfectly known on the continent. The very few areas of these rocks in any sense adequately described are widely separated geographically and correlation of the portions of history represented has been based generally on meagre and unsatisfactory evidence. In the course of the past nineteen years the Department of Palaeontology of the University of California, under Professor Merriam's guidance, has been almost continuously engaged in work on the Great Basin Tertiary. The investigations have included the larger part of the area, and the study of nearly all of the principal occurrences of deposit in these periods. The

results of these studies have been included in more than thirty-eight articles appearing in the University of California publications, and in a considerable number of papers elsewhere, issued through other mediums. The continued increase in our knowledge of the succession of Tertiary formations in the Great Basin has made necessary the constant revision of views relating to the geographical history of this province, and it will be difficult for many years to furnish anything like a complete review of the whole subject. In view of the complication of the subject and the difficulty of making progress without having a statement of the present advance of investigation, it has been considered desirable to bring together now the materials most needed as the basis for an understanding of the Tertiary problem of the Great Basin.

Descriptions of 762 Nebulae and Clusters Photographed with the Crossley Reflector

By Heber Doust Curtis, Astronomer, Lick Observatory. University of California Press. Quarto, about 40 pp. with 8 illustrations.

This paper contains brief descriptions of all nebulae and clusters photographed with the Crossley Reflector from 1898, when systematic work was commenced with this instrument at Mount Hamilton, until February 1, 1918. The objects described may be tabulated as follows: 513 spiral nebulae, 56 diffuse nebulosities, 36 globular clusters, 24 spare

clusters, 78 planetary nebulae, 8 "dark" nebulae, 47 unclassified, non-existent, etc. A new determination is made of the probable total number of the spiral nebulae. In all, 6211 spiral nebulae, most of them very small, are recorded on the 439 regions of the programme available for such counts. These results indicate 722,000 as the number of spiral nebulae in the entire sky accessible with large modern reflecting telescopes.

The Dinoflagellata of the San Diego Region—The Gymnodinioidae

By CHARLES ATWOOD KOFOID, Professor of Zoology, and OLIVE SWEZY, Zoologist, Scripps Institution for Biological Research. University of California Press. Quarto, about 250 pp., 12 plates in color, 16 text figures.

This monograph deals with a group of little known littoral and pelagic organisms, found in the Pacific Ocean off the coast of California in the vicinity of La Jolla and San Diego. These minute organisms are remarkable for their beauty and delicacy of coloring, and are among the causes of the nightly display of phosphorescence in the breakers along the southern shores. They also form an important part of the food supply of the great oceanic meadows. To the six genera of this family which have been found most abundantly, namely *Amphidinium, Gumnodinium, Gyrodinium, Cochlodinium, Pouchetia, and Erythropsis,* six new genera and 115 new species have been added, more

than doubling the previous records, which were chiefly those of Old World species, the Pacific Ocean forming an entirely new field for investigation. These have been treated systematically, with a complete summary of previous work done on the group. The study has brought to light some interesting lines of evolutionary development in these small Protozoa, as well as emphasizing the importance of temperature relations, both from a morphological standpoint and in regard to speciation within the group. It has also shown that many of these so-called simplest forms of life possess a complexity of organization which far surpasses that of many of the lower Metazoa.

Electrical Phenomena in Parallel Conductors

By FREDERICK EUGENE PERNOT, Assistant Professor of Electrical Engineering. 8vo., about 200 pp.

It is of fundamental importance to be able to predetermine with as much numerical accuracy as possible, the phenomena which may take place in electrical systems. It is of importance, firstly, because such predetermination, when possible, can be made at much less expense and trouble than is required to obtain the same information experimentally; and secondly, because information so obtained opens a way to new developments in the application of scientific knowledge. With this idea in mind the author of *Electrical Phenomena in Parallel Conductors* has endeavored to discuss the phenomena arising in connection with the transmission of elec-

trical power over metallic circuits. Using fundamental principles, rigorous equations have been developed, giving the relations between voltage, current, and constants of the circuits. Extensive use has been made of the complex quantity notation in all developments having to do with alternating currents. Whenever possible, approximate equations as well as their limitations and the errors involved in their use have been considered. Illustrative numerical examples and curves, including several dealing with long transmission lines, have been included. Finally, the author has endeavored to put all equations into such form that they may be intelligible and useful to the general engineer.

The Felidae of Rancho La Brea

By JOHN CAMPBELL MERRIAM, Professor of Palaeontology and Historical Geology. University of California Press. Quarto, about 150 pp. 100 plates, 200 text figures.

This memoir deals with the extraordinary accumulation of remains of extinct animals found in the asphalt beds of Rancho La Brea near Los Angeles. It is probable that the most striking illustration of the exceptional nature of this deposit is found in the great representation of the Felidae or cats. It is certain that in examining the many geological formations of the earth up to the present time no other occurrence has been known to contain such a marvelous abundance of perfectly preserved remains representing the cat group as that discovered at Rancho La Brea. With the

exception of the wolves, the cats are of all groups of animals the most abundantly represented at Rancho La Brea, the known specimens furnishing probably close to two thousand individuals available for study. There are moreover represented within this fauna the highest and most efficient stages in the evolution of the two great divisions of the cat group; one being represented by the sabre-tooth, the acme of cat specialization on this line of evolution, the other represented by the magnificent lion, *Felis atrox,* the giant representative of the true cat tribe, and the largest known member of the cat group. The monograph on the Felidae covers a full study of all members of the cat group known in this fauna at Rancho La Brea, with description of their structure, their classification, and the significance of the remains in terms of biological and geological history.

The Fermentation Organisms of Californian Grapes

By WILLIAM VERE CRUESS, Assistant Professor of Zymology. University of California Press. Large 8vo., about 50 pp.

This paper was prepared as a result of investigations made by the author on the micro-organisms occurring on Californian grapes and more particularly of those of most importance in the fermentation of grapes. The investigation was qualitative and quantitative, covering the effect on type and number of micro-organisms of (*a*) local-

ity, (*b*) degree of ripeness, and (*c*) shipment from vineyard to winery. It included studies of (*d*) the micro-organisms normally found on grapes as received at the winery, (*e*) their control during fermentation, and (*f*) their morphological and histological characteristics. The data are of value to enologists and winemakers engaged in the fermentation of grapes for wine or other fermented products and will be of interest to the systematic microbiologist engaged in the classification of micro-organisms from fruits.

Fundamental Equations of Dynamics

By FREDERICK SLATE, Professor of Physics. University of California Press. 8vo., 220 pp. + preface and index.

The systematic and inclusive discussion of Dynamics has been repeated so often that it is in many ways reduced to standard expression. This applies both to the abstracter aspects and to those which are more practical. But the science is readjusting somewhat rapidly various intimate connections with physical thought, and official adoption is being secured for vectorial expression of relations. Because this situation exists, the writing of a self-contained treatment of dynamics has been relinquished here, and attention has been concentrated upon a narrower group of topics, where opportunities for modification are now plainly in evidence. Although some still believe that in bulk the recorded conquests of dynamics are permanent, and that they may still be approached best through

the work of the classic masters in this field, Professor Slate's work demonstrates how our further reading of arguments and results may need to be cleared or rectified in its details. For example, a consistent use of "Vector-angle" may well supplement hereafter the notions bequeathed to us by Euler. The idea of "Shift" is shown to throw desirable illumination upon the practice in using coördinate-systems.

The Game Birds of California

By Joseph Grinnell, Director, California Museum of Vertebrate Zoology; Harold Child Bryant, Economic Ornithologist, and Harry Schelwaldt Swarth, Curator of Birds, of the Staff of the California Museum of Vertebrate Zoology. University of California Press. Large 8vo., about 1000 pp. with 16 plates in color and many drawings.

This work is a description of the game birds of the state (the ducks, geese, swans, ibises, cranes, rails, shore-birds, grouse, quail, and pigeons), and is prepared to meet the requirements of a varied public. It aims to give the hunter general information concerning the local game birds, to supply the naturalist with data regarding life histories, to give the legislator helpful facts relevant to the preparation of game laws, and to give the conservationist information contributory to his efforts to perpetuate bird life. The original matter is derived from manuscript notes and specimens in the California

Museum of Vertebrate Zoology, while an exhaustive review and compilation of literature relating to California game birds was also made. The material at hand has thus been organized in such form as to provide a convenient summary of our knowledge of the subject to date. Under each species there is technically descriptive matter pertaining to plumages, eggs, nesting, distribution, etc., followed by a less formal treatment giving fuller information along the same lines. Sixteen colored plates, nine of them made especially for this book, figure some of the more notable birds, while line drawings illustrate special characters of nearly every species. In addition to the specific treatment by species there are chapters devoted to subjects relating to game birds in general, such as "Decrease of game and its causes," "Natural enemies of game birds," "The gun club in California," "History of attempts to introduce non-native game birds into California," "The propagation of game birds," and "Legislation relating to game birds in California."

Logarithms of Hyperbolic Functions to Twelve Significant Figures

By Frederick Eugene Pernot, Assistant Professor of Electrical Engineering, and Baldwin Munger Woods, Assistant Professor of Theoretical Mechanics. University of California Press. Large 8vo., 171 pp.

In previously published tables of the hyperbolic functions, where an accuracy of more than five

places is obtained, a gap exists in the tabulation of the functions for the values of the argument between zero and two. Owing to the rapid variation of the derivatives of the functions in this interval the computations for a twelve-place table are somewhat tedious and complicated. It is precisely in this part of the table, however, that computations required by the application of hyperbolic functions to engineering problems now fall. The authors undertook the compilation of these tables with the idea of supplying a base table which would fill the existing gap and furnish a source for future tables for engineering computations.

The Marine Algae of the Pacific Coast of North America

By WILLIAM ALBERT SETCHELL, Professor of Botany, and NATHANIEL LYON GARDNER, Assistant Professor of Botany. University of California Press. Large 8vo., 850 pp., fully illustrated.

This monograph aims to present for the first time an account of all the species of Marine Algae known to occur on the Pacific coast of North America. Descriptions are given of all the species, together with the most important references to the literature, statements as to habitat and distribution and critical notes in connection with each. There are keys to the various groups and genera, and at times to the species in the larger genera. The work is fully illustrated, both in the form of line engrav-

ings and reproductions of photographs. The work will include the marine species of the groups of the Myxophyceae or Blue-Green Algae, the Chlorophyceae or Grass-Green Algae, the Phaeophyceae or Brown Algae, and the Rhodophyceae or Red Algae. There are approximately 850 species of the combined groups known from the Pacific coast at the present time, but there have not been available previously satisfactory accounts or even lists of the known species.

Mutation in Matthiola

By HOWARD BRETT FROST, Instructor in Plant Breeding in the Citrus Experiment Station and Graduate School of Tropical Agriculture. University of California Press. Large 8vo., 80 pp., 13 plates.

Dr. Frost describes the occurrence, characteristics, and heredity of certain aberrant types of *Matthiola annua* Sweet, which appear to arise by mutation. These types occur in small numbers among the progency of selfed plants of the commercial variety "Snowflake"; they differ from the parent variety in various characteristics, including size, vigor of growth, time of flowering, number of nodes, form of leaves, resistance to certain adverse conditions, fertility, etc. Each of these types usually appears to differ from the parent variety in one dominant genetic factor, which in all cases but one seems to be lethal when homozygous and

usually semilethal when hetrozygous. The case has special interest because these types resemble in genetic behavior some of the supposedly mutant types of Oenothera (which are considered by some geneticists to be "non-Mendelian"), although the typical Mendelian mechanism of heredity is known to be present in the species.

Ocean Temperatures. Their Relation to Solar Radiation and Oceanic Circulation

By George Francis McEwen, Hydrographer, Scripps Institution for Biological Research. University of California Press. Large 8vo., about 100 pp.

Dr. McEwen's study is a contribution toward the quantitative solution of physical problems based on observations of phenomena as they occur under the complex conditions of nature. Four closely related problems relative to ocean temperatures are formulated and solved with the aid of well-known methods in mathematical physics. The first problem deals with the rate of gain and loss of heat in an element of volume of sea-water at or near the surface, on the assumption that the average rate of flow is zero. The second problem deals with the effect of a horizontal flow on surface temperatures. In the third problem the relation of temperature to time, depth, and vertical velocity of the water in the depth interval from 40 to 700 meters is investigated with the aid of a theory of heat

conductivity in a moving medium. Finally, an estimate of the reduction of surface temperatures due to upwelling is made. Numerical applications mainly to observations made in the Pacific Ocean off the west coast of North America follow the solutions of the problems, and special attention is given to the comparison of theory with observations.

Perturbations and Tables of the Minor Planets Discovered by James C. Watson, Part II

By Armin Otto Leuschner, Professor of Astronomy. Quarto, 150 pp.

By the will of James C. Watson the National Academy of Sciences of the United States of America was entrusted with the mathematical investigation of the motion of the twenty-three minor planets which he had discovered. In 1901, after various investigators had carried on the work for more than fifteen years without arriving at satisfactory results of the perturbations, the Trustees of the Watson Fund of the Academy requested Professor Leuschner to continue the researches in the hope that they might be carried to a successful conclusion. The work was carried on at the Students' Observatory with the aid of assistants and graduate students. In 1910 the completed results relating to twelve planets were published in the *Memoirs of the National Academy,* Volume X, as Part I of the whole investigation. The results relating to the remaining eleven planets are comprised in the present work. These remaining eleven

cases required special methods of solution. Several planets belong to the group of which the mean motion is nearly twice that of the planet Jupiter. These cases have been treated by methods proposed by Bohlin and von Zeipel. A revision of these methods and of the general tables based on them with reference to this group is included in the publication. The author has received assistance during the later stages of the investigation from Miss Estelle A. Glancy and Miss Sophia H. Levy.

The Physical Chemistry of the Proteins

By THORBURN BRAILSFORD ROBERTSON, Professor of Biochemistry and Pharmacology. Longmans, Green & Co. 8vo., 483 pp.

The proteins have, ever since the publication of the classic researches of Graham, been generally recognized as typical examples of that class of substances which Graham designated "Colloids." This work, therefore, although primarily concerned with the physical chemistry of a limited section of the class, may also, in some measure, be regarded as contributing to an analysis of the properties and behavior of colloids in general, in so far as these permit of illustration by the properties and behavior of the various members of the protein group. To the biologist and to the student of medicine the proteins are of exceptional interest, since they are the constituents of protoplasm which, more evidently than any others, contribute to the unique complex of properties which distinguish the "phys-

ical basis of life'' from inanimate matter. To the physical chemist the proteins are also of exceptional interest, since the enormous size of their molecules exaggerates many properties which are displayed by the smaller molecules of the simpler substances only to an almost imperceptible degree. From the point of view of the industrial chemist the proteins are rapidly attaining very great importance, the diversity of physical characteristics which are displayed by the various members of the protein group ensuring their ultimate utility in a like variety of industrial applications. The aim of the author has been to present a monograph which should constitute a comprehensive work of reference and at the same time a contribution to the general theory of the subject.

The Planetary Nebulae

By Heber Doust Curtis, Astronomer, Lick Observatory. University of California Press. Quarto, about 40 pp. with 84 illustrations.

This paper contains photographs, drawings, and brief descriptions of seventy-eight planetary nebulae (all known objects of this class north of 34° south declination). A discussion of the forms observed shows that while the minor structural details of the planetary nebulae are frequently exceedingly complex, a large proportion of the planetaries approximate more or less closely to an ellipsoidal shell, or a wide ring of gaseous matter, about a central star.

The Radial Velocity of the Greater Magellanic Cloud

By Ralph Elmer Wilson, Acting Astronomer in Charge of the D. O. Mills Expedition. University of California Press. Quarto, 5 pp.

The Greater and Lesser Magellanic Clouds, far to one side of the Milky Way, in appearance resembling detached and isolated areas of the Milky Way, contain respectively nineteen and one nebulae known to have bright lines in their spectra. The radial velocity of the one nebula in the Lesser Cloud has been measured at the D. O. Mills Observatory and found to be 168 kilometers per second recession. The radial velocities of seventeen of the bright-line nebulae in the Greater Cloud have been observed at the D. O. Mills Observatory, with individual results lying between the limits of 250 and 320 kilometers per second, recession. The other two nebulae are too faint for successful observation by present means. These nebulae are undoubtedly within the structure of the Greater Cloud and the observed results are in support of the hypothesis that the radial velocity of the Cloud structure as a whole is in the neighborhood of 280 kilometers per second. recession. If this is true, the Greater Cloud, and no doubt the Lesser Cloud, are separate stellar systems independent of our Milky Way system.

The Spectrographic Velocities of the Brighter Stars, observed at the Lick Observatory and the D. O. Mills Observatory

By William Wallace Campbell, Director, Lick Observatory. University of California Press. Quarto, 400 pp.

Professor Campbell describes the instruments and methods employed at Mount Hamilton and at Santiago, Chile, in the accurate determination of the motions of approach and recession of about two thousand of the brighter stars distributed over the entire sky. The results for the individual observations of each star are given and a list of the mean results obtained for the individual stars, forming a catalogue of the radial velocities of these stars. Appropriate data is furnished for the several hundred stars in the list whose radial velocities vary under the gravitational influences of companion stars. A determination of the motion of the solar system through the great stellar system is made by means of the observational data described, and other statistical studies relating to apparent motions of stars of the different spectral classes are included.

The Spectrographic Velocities of the Bright-Line Nebulae

By William Wallace Campbell, Director, Lick Observatory, and Joseph H. Moore, Assistant Astronomer. Lick Observatory. University of California Press. Quarto, 75 pp.

The radial velocities of all nebulae whose spectra are known to contain bright-lines and are bright enough for observation have been measured at the Lick Observatory and at the D. O. Mills Observatory; 77 at Mount Hamilton and 48 at Santiago, Chile, 125 in all. The radial velocities for many parts of the great nebula in Orion have also been determined. Statistical studies of the observed velocities establish the fact that the velocities of bright-line nebulae are several-fold as great as the average velocities of the stars. At Mount Hamilton forty-five of those bright-line nebulae known as "planetaries" have been observed spectrographically for rotation or internal motion effects. For twenty-five planetaries the principal results are most satisfactorily interpreted as rotations; for four objects rotations are suspected; sixteen objects give no certain evidences of rotational effects with the degree of dispersion employed.

A Study of Absorption Effects in the Spiral Nebulae

By HEBER DOUST CURTIS, Astronomer; Lick Observatory. University of California Press. Quarto, about 30 pp., with illustrations of 78 spirals.

It has long been known that certain spiral nebulae seen edgewise show dark lanes along their major axis. Dr. Curtis has examined the extensive collection of photographs of spiral nebulae made with the Crossley Reflector and shows that this phenomenon is much more common than had been hitherto supposed. Illustrations are published of seventy-eight spirals which show this effect. A discussion of the forms observed indicates as the most probable cause the occulting effect due to bands or whorls of non-luminous matter in the peripheral regions of these spirals. The evidence of occulting matter in our own galaxy are discussed in this connection, and it is suggested that the fact that very few spiral nebulae are found in or near to the plane of the Milky Way may be due to the presence of a similar zone of occulting matter in the peripheral regions of our own galaxy.

Synopsis of the Aphididae of California

By ALBERT FREE SWAIN, Assistant in Entomology. University of California Press. Large 8vo., about 200 pp.

This paper includes results of the study of *Aphididae* known to occur in California, listing all

known species, with a bibliography, collection records, distribution, and notes of the biology of each. It is also a study of the synonomy of the species and genera, and contains the author's conclusions regarding the same. There are tables for the determination of the groups, genera, and species, together with such illustrations (317 in number, in 17 full-page plates) as are necessary for the proper use of the tables. A host plant index of all species is included. The object is to bring together a complete record to date of all species known to occur in the state, and to place the same in such a form that the identification of species can be made more or less readily by entomologists who are not specialists in this group.

The Theory of the Relativity of Motion

By Richard Chace Tolman, Professor of Chemistry, University of Illinois. University of California Press. Large 8vo., 225 pp.

This book presents an introduction to the Theory of the Relativity of Motion, a theory which in the decade since the publication of Einstein's first paper has become a necessary part of the theoretical equipment of every physicist. The method of treatment adopted is to a considerable extent original and part of the material itself appears here for the first time. Professor Tolman aims not only to introduce the study of the relativity theory to those previously unfamiliar with the subject but also to provide the necessary

methodological equipment for those who wish to pursue the theory in its more complicated applications. Even if we regard the Einstein theory of relativity merely as a convenient tool for the prediction of electro-magnetic and optical phenomena, its importance to the physicist is very great, not only because its introduction greatly simplifies the deduction of many theorems which were already familiar to the older theories based on a stationary ether, but also because it leads simply and directly to correct conclusions in the case of such experiments as those of Michelson and Morley, Trouton and Noble, and Kaufman and Bucherer, which can be made to agree with the idea of a stationary ether only by the introduction of complicated and *ad hoc* assumptions. Regarded from a more philosophical point of view, an acceptance of the Einstein theory of relativity would appear clearly to show the advisability of completely remodeling some of our most fundamental ideas. In particular some scholars point out that we shall now do well to change our concepts of space and time in such a way as to give up the old idea of their complete independence, a notion which we have received as the inheritance of a long ancestral experience with bodies moving with slow velocities, but which no longer proves pragmatic when we deal with velocities approaching that of light.

Typhoid Fever, Considered as a Problem of Scientific Medicine

By Frederick Parker Gay, Professor of Pathology. The Macmillan Co., New York. 8vo., 286 pp.

During the past five years Professor Gay and collaborators have published in various journals a series of articles dealing with typhoid fever. These have been concerned with the treatment of typhoid fever with sensitized vaccines, the production of the carrier state in laboratory animals, prophylactic immunization against typhoid fever, skin reactions in typhoid fever and the preparation and the use of typhoidin for this purpose. The studies have not unnaturally led to the preparation of the above volume, the intention and scope of which are summarized in the following excerpt from the preface: "It aims to treat historically the development and present status of our knowledge concerning this important malady as viewed from the standpoint of its mechanism. It is not primarily designed to aid directly in the clinic or the laboratory, but should serve to point out the relations of one to the other, to indicate the dependence of practice on theory, and the happy applicability to human need of investigation that may have seemed to aim merely at the gratification of intellectual curiosity."

The Wave-Lengths of the Nebular Lines and General Observations of the Nebular Spectra

By WILLIAM HAMMOND WRIGHT, Astronomer, Lick Observatory. University of California Press. Quarto, 100 pp.; about 35 half-tone illustrations.

These investigations had their inception in an attempt to improve our knowledge of the wave-lengths of the nebular lines. In the course of Dr. Wright's work numerous new lines were recorded and a relation developed between the planetary nebulae and the Wolf-Rayet, or Class 0 stars. At this juncture the work broadened into a more general study of nebulae spectra in the hope that more light might be shed upon the relation between the nebulae and the stars. In particular a detailed determination was undertaken of the distribution in the nebulae of the materials of which they are composed, and a number of curious phenomena were discovered which have suggested some tentative generalizations concerning the distribution of material within the nebulae, and the nature of any progressive changes which may be taking place within these bodies. The nuclei, or centers of condensation within the nebula, are indicated as bodies of very high temperature, and the chief significance of the observations probably lies in the strong confirmation they afford of a close

relationship between the nebulae and the Class 0 stars. The establishment of such a relation has a bearing on our views of stellar evolution. A number of other facts of possible interest in the study of astrophysics have been developed.

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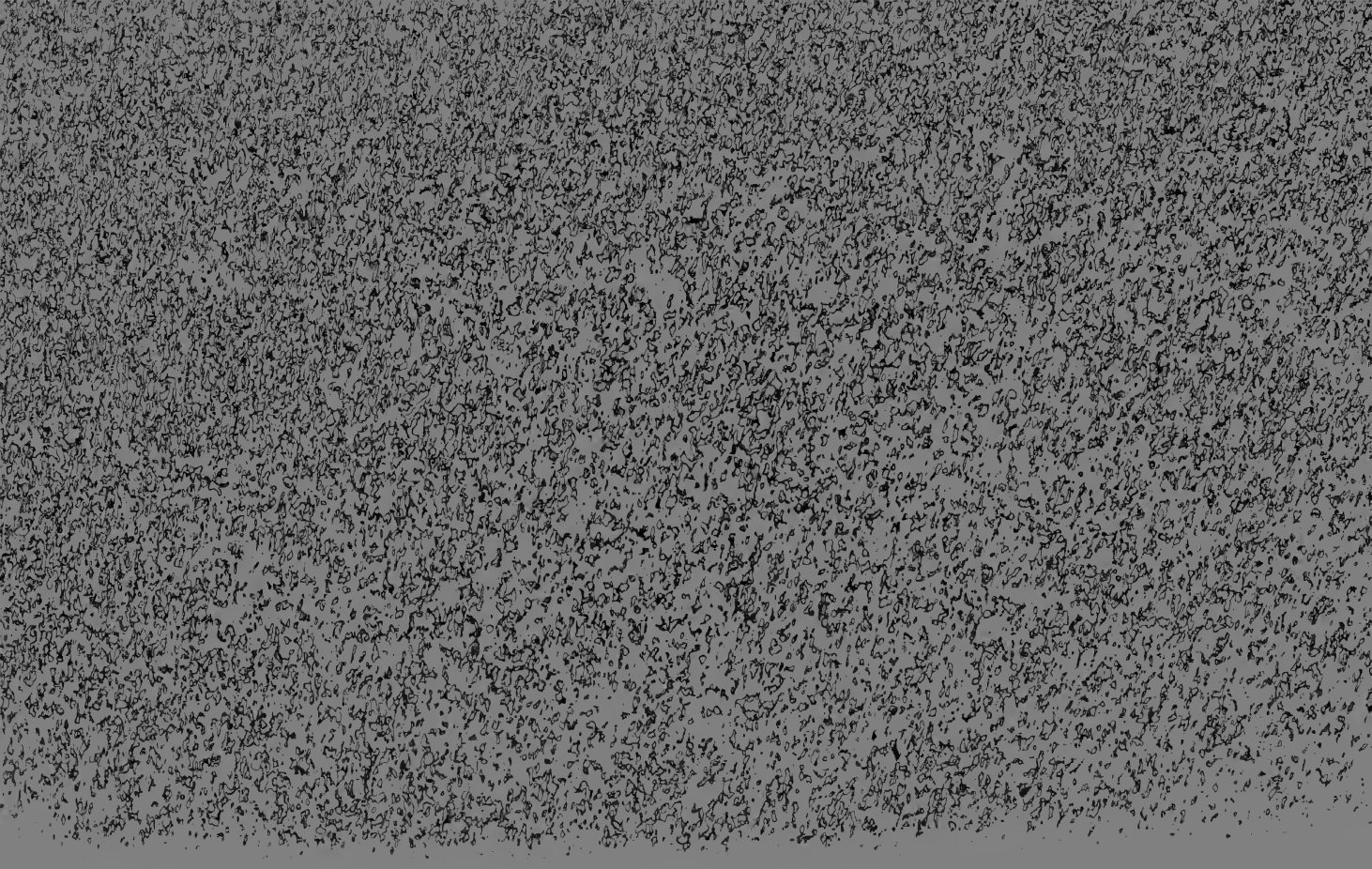

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